

## **Chapter Ten: Glossary**

---

**Active warning device** Flashing lights and/or gates used at grade crossings.

**Advance warning signals** A sign used along a roadway to warn that a roadway-rail grade crossing is ahead.

**Aquifer** An underground geological formation containing usable amounts of groundwater that can supply wells and springs.

**At-grade crossing** The surface where the rail and a roadway (or pathway) cross at the same level.

**Ballast** Material selected for placement on the roadbed for the purpose of holding the track in place.

**Best Management Practices (BMPs)** Used during construction, methods that have been determined to be the most effective, practical means of preventing or reducing pollution from non-point sources.

**BTU (British Thermal Unit)** Standard measure for heat energy.

**Bypass** A track that goes around other rail facilities (bypasses them) or provides a more direct route between two points. A bypass may be as simple as a track that goes around a small yard, or may be as significant as a complete route revision.

**Capital costs** Non-recurring costs required to construct (or improve) the rail line. Capital costs include the purchase of vehicles, track improvements, station rehabilitation, and design and administrative costs associated with these improvements.

**Centralized Traffic Control** An electronic system that uses remote controls to change signals and switches along a designated portion of railroad track.

**Chokepoint** An area along the railroad track that has less capacity than the adjoining tracks, resulting in congestion. This makes it difficult for trains to pass uninterrupted.

**Commuter rail** Service between a central city and its suburbs, running on a railroad right of way. Examples include the Sound Transit's commuter rail system in Puget Sound, Metrolink in Los Angeles, California and British Columbia's West Coast Express.

**Consist** The number of vehicles forming a train.

**Continuous welded rail** Rails welded together in lengths of 400 feet or more.

**Corridor train** Intercity rail passenger service that links major transportation centers within a limited geographic region. Trains that only travel between Vancouver, BC and Eugene, OR are called corridor trains throughout this document.

**Crossover (and Power crossover)** A set of turnouts connecting multiple tracks. A crossover allows a train to move from one track to another. A power crossover may be controlled by Centralized Traffic Control.

**Deficiencies** Areas along the track that cannot handle expected increased train frequencies.

**Derail (and Power Derail)** A safety device on the track strategically located that when positioned, intentionally guides runaway rolling stock off the track to protect against collisions. A power derail may be operated by Centralized Traffic Control.

**Dispatcher** The individual who plans and controls the movement of trains.

**Double track** Two sets of main line track located side by side, most often used for travel in opposite directions, like roadways.

**Environmental Assessment (EA)** An environmental analysis prepared pursuant to the National Environmental Policy Act (NEPA) to determine whether a federal action (or project with federal investment) would significantly affect the environment and thus require a more detailed environmental impact statement.

**Environmental Impact Statement (EIS)** A document required by federal and state agencies under the National Environmental Policy Act (NEPA) and Washington State's Environmental Policy Act (SEPA). An EIS is required for major projects or legislative proposals that may significantly affect the

environment. A tool for decision making, it describes the positive and negative effects of the undertaking and identifies alternative actions.

**Exclusive right of way** A right of way that is to be used only for the rail line (either freight or passenger or both). It is usually completely grade-separated from other types of vehicles.

**Fill sections** Depositing of dirt, mud, or other materials into aquatic areas to create more dry land.

**Flashing light signals** Used with the crossbuck signs at railroad crossings. When the lights are flashing, the motorist or pedestrian must stop.

**Floodplains** The flat or nearly flat land along a river or stream that is covered by water during a flood.

**Frequency** A term used to describe the level of rail service. For intercity rail, frequent service means that trains serve a particular station at least every four hours.

**Gates** Used with flashing signals at certain crossings to warn that a train is approaching.

**Geometrics** An engineering term that refers to the design of the tracks.

**Grade crossing** The area along the track where a roadway or pathway crosses.

**Grade-separated** Crossing lines of traffic that are vertically separated from each other (i.e., a roadway that goes over a railroad track).

**Groundwater** Supply of fresh water found beneath the earth's surface, usually in aquifers, that supplies wells and springs.

**Habitat** The place where a population (human, animal, or plant) lives and its surroundings.

**Hazardous materials** Material, often waste, that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, explosive, or chemically reactive.

**High speed rail** Trains like the famed Japanese Bullet Train, well known in European and Asian countries. These trains travel at speeds greater than 125 miles per hour on exclusive right of way and are economically feasible only in the world's densely populated areas.

**Intercity (passenger) rail** Service connecting central city to central city on a railroad right of way in densely traveled corridors. Amtrak's metroliner service between Washington, DC and Boston is a well-known example of higher-speed intercity rail. Locally, the Amtrak *Cascades* connecting Vancouver, BC to Seattle is an example of intercity passenger rail. Intercity passenger rail provides both regional and long distance service. The Amtrak *Cascades* service is a regional service.

**Intermodal** The use of different types of transportation modes to move freight shipments and people, i.e. ships, trains, buses, and trucks.

**Light rail** Carries a light volume of traffic. "Light" refers to the number of riders that the train can carry, not the weight. Light rail may share right of way on a roadway or operate on exclusive right of way and can have multi-car trains or single cars. Trolley cars and Portland, OR's MAX system are examples of light rail.

**Liquefaction** When a solid changes to a liquid. Often the case with some soils, resulting in landslides.

**Lock switch (and Electric lock switch)** Operated by Centralized Traffic Control to regulate when trains can enter on or off the tracks. An electro-mechanical device that prevents movement of a hand throw switch when a train is approaching

**Long distance (Long-Haul) train** A passenger train that serves major transportation centers within and beyond those of a corridor train. An example is Amtrak's *Coast Starlight* that travels between Los Angeles and Seattle.

**Main line (Mainline)** A railroad's primary track that usually extends great distances. It usually carries both freight and passenger trains.

**Meet** A meet is the location where two trains traveling in opposite directions pass one another. Additional tracks and/or crossovers may need to be placed near these locations so that trains can maintain speeds and schedule reliability.

**Mitigation** Measures taken to reduce adverse impacts on the environment.

**National Pollution Elimination Discharge System (NPDES)** A provision of the Clean Water Act that prohibits discharge of pollution into waters of the United States unless a special permit is issued by the U.S. Environmental Protection Agency, a state agency, or where delegated, a tribal government.

**Non-point source** Pollution sources without a single point of origin. The pollutants are generally carried off the land by stormwater.

**Operating costs** Recurring costs of operating passenger service. These costs include wages, maintenance of facilities and equipment, fuel, supplies, employee benefits, insurance, taxes, marketing, and other administrative costs.

**Passive warning device** Signs or markers used at all grade crossings.

**Patronage** The number of people carried by the passenger train during a specified period.

**Pavement markings** Painted on the pavement in advance of a railroad highway crossing, to warn the motorist or pedestrian of the rail crossing.

**Positive train separation** A new railroad safety system, using high tech equipment to prevent train collisions.

**Rail yard** A system of tracks within defined limits, designed for storing, cleaning, and assembling (to each other) rail cars.

**Railroad crossbuck** A type of sign found at all public railroad crossings. This sign should be treated as a yield sign.

**Railroad tie** The part of the track, often wood or concrete, where the rails are spiked or otherwise fastened.

**Rapid (or heavy) rail** An electric railway that carries a large volume of people on exclusive right of way. Subways like San Francisco's BART or Washington, DC's Metrorail are examples of rapid (or heavy) rail.

**Recharge area** A land area in which water reaches the zone of saturation from surface infiltration, e.g., where rainwater soaks through the earth to reach an aquifer.

**Reliability** A service measure in transit planning. If a train or bus arrives within five to ten minutes of its scheduled time, it is considered reliable. Reliability can be impacted by congestion on the tracks, delays at stations, and equipment malfunction.

**Ridership** The number of people carried by the passenger train during a specified period.

**Right of way** The horizontal and vertical space occupied by the rail service. In the Pacific Northwest Rail Corridor, BNSF owns the right of way. Amtrak, WSDOT, and Sound Transit run their trains on BNSF's right of way through operating agreements.

**Rolling stock** Train vehicles.

**Runoff** That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface water. It can carry pollutants from the air and land into receiving waters.

**Siding** An auxiliary track located next to a main line that allows a train to move out of the way of an oncoming train. Sidings are also used to store trains or to add/subtract rail cars.

**Switch** The component of a turnout consisting of switch rails and connecting parts providing the means for making a path over which to transfer rolling stock from one track to another. The switch may be thrown manually or electronically.

**Travel time** The elapsed time between a trip's beginning and end. It includes travel, transfers, and waiting time.

**Turnout** A track arrangement that connects tracks, allowing movement from one to another.

**Wetland** An area saturated by surface or groundwater with vegetation adapted for life under those soil conditions. Examples of wetlands are swamps, bogs, and estuaries.

**Yard limits** An area where locomotives may enter the main tracks under simplified conditions without authority from the dispatcher.